

## CLAIMS:

- [1] An elastic strip material composed of a heat setting composition whose principal ingredients are a polyurethane prepolymer and a latent solidifier obtained by deactivating a solid polyamine, the prepolymer and the solidifier preliminarily forming a fluid mixture 'a' to subsequently contain a compressed gas dispersed throughout the fluid mixture, so that the fluid mixture 'a' is allowed to foam due to expansion of the gas and heated to or above a critical solidification temperature, thereby letting it solidify to give a strip material of a desired cross section.
- [2] A method of producing an elastic strip material, comprising the steps of: preparing a heat setting composition whose principal ingredients are a polyurethane prepolymer and a latent solidifier obtained by deactivating a solid polyamine, so that a fluid mixture 'a' is formed by dispersing a compressed gas throughout the heat setting composition, extruding out the fluid mixture 'a' from a nozzle (1a) of a resin extruder (1), so that an extruded stream of a desired diameter immediately foams itself, subsequently guiding the stream having not solidified yet into a heating zone (2) whose interior has been heated to or above a critical solidification temperature, so that the stream thus heated is allowed to solidify and simultaneously pressed into a desired peripheral shape while advancing through the heating zone (2), and finally discharging from the heating zone (2) the foamed, solidified and pressed stream so as to be cooled down to an ambient room temperature, thereby giving the elastic strip material.
- [3] A method of producing an elastic strip material, comprising the steps of: preparing a heat setting composition whose principal ingredients are a

polyurethane prepolymer and a latent solidifier obtained by deactivating a solid polyamine, so that a fluid mixture 'a' is formed by dispersing a compressed gas throughout the heat setting composition, extruding out the fluid mixture 'a' from a nozzle (1a) of a resin extruder (1), so that an extruded stream of a desired diameter immediately foams itself, subsequently guiding the stream having not solidified yet into a liquid heating zone (2) whose interior has been heated to or above a critical solidification temperature, so that the stream thus heated is allowed to solidify and simultaneously pressed into a desired peripheral shape while advancing through the heating zone (2), and finally discharging from the liquid heating zone (2) the foamed, solidified and pressed stream so as to be cooled down to an ambient room temperature, thereby giving the elastic strip material.

- [4] A method of producing an elastic strip material, comprising the steps of: preparing a heat setting composition whose principal ingredients are a polyurethane prepolymer and a latent solidifier obtained by deactivating a solid polyamine, so that a fluid mixture 'a' is formed by dispersing a compressed gas throughout the heat setting composition, extruding out the fluid mixture 'a' from a nozzle (1a) of a resin extruder (1), so that an extruded stream of a desired diameter immediately foams itself, subsequently guiding the stream having not solidified yet into a gaseous heating zone (2) whose interior has been heated to or above a critical solidification temperature, so that the stream thus heated is allowed to solidify and simultaneously pressed into a desired peripheral shape while advancing through the heating zone (2), and finally discharging from the gaseous heating zone (2) the foamed, solidified and pressed stream so as to be cooled down to an ambient room temperature, thereby giving the elastic strip material.

- [5] An apparatus for producing an elastic strip material, comprising a resin

extruder (1), a liquid tank (21) having and cooperating with at least one rotor (22), a motor (23) for driving the rotor (22) to rotate *in situ*, and a heating bath (2A) including the liquid tank, the resin extruder (1) comprising a reservoir (11) for storing therein an amount of a heat-setting composition, a gas feeding pipe (12) for charging the reservoir with a compressed gas, and a nozzle (1a) for extruding a fluid mixture 'a' to form a resin stream, the rotor (22) being constructed such that the resin stream of fluid mixture 'a' effluent from the nozzle (1a) and having already foamed but not yet solidified is guided into a hot liquid (2a) held in the liquid tank (21) and caused to advance through it, the heating bath (2A) having therein a trough (24) formed in and along the periphery of the rotor (22) so as to receive the resin stream of fluid mixture 'a', and a surface shaping member (25) disposed close to and facing the trough (24) so that the fluid mixture 'a' is heated in the heating bath (2A) so as to solidify therein and form a resin strip 'b', the heating bath (2A) further comprising an outlet guide (26) for directing the resin strip 'b' towards the outside of the liquid tank (21), thereby giving the elastic strip material.

- [6] An apparatus for producing an elastic strip material, comprising a resin extruder (1), a gaseous heating chamber (41) having and cooperating with at least one rotor (42), a motor (43) for driving the rotor (42) to rotate *in situ*, and a heating booth (4) including the heating chamber (41), the resin extruder (1) comprising a reservoir (11) for storing therein an amount of a heat-setting composition, a gas feeding pipe (12) for charging the reservoir with a compressed gas, and a nozzle (1a) for extruding a fluid mixture 'a' to form a resin stream, the rotor (42) being constructed such that the resin stream of fluid mixture 'a' effluent from the nozzle (1a) and having already foamed but not yet solidified is exposed to a hot gaseous interior (2b) of the gaseous

heating chamber (41) and caused to advance through it, the heating chamber (41) having therein a trough (44) formed in and along the periphery of the rotor (42) so as to receive the resin stream of fluid mixture 'a', and a surface shaping member (45) disposed close to and facing the trough (44), so that the fluid mixture 'a' is heated in the gaseous heating chamber (41) so as to solidify therein to form a resin strip 'b', the heating booth (4) further comprising an outlet guide (46) for taking the resin strip 'b' out of the rotor (42) and directing it to the outside of the heating chamber (41), thereby giving the elastic strip material.